

FILE 'HOME' ENTERED AT 16:05:17 ON 13 AUG 2004

=> file biosis agricola caplus caba

=> s ankyrin repeat

L1 832 ANKYRIN REPEAT

=> s l1 and resistance

L2 37 L1 AND RESISTANCE

=> duplicate remove l2

L3 25 DUPLICATE REMOVE L2 (12 DUPLICATES REMOVED)

=> d ti 1-25

L3 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Expressed polynucleotides markers for predicting activity of compounds that interact with and/or modulate protein tyrosine kinases and/or protein tyrosine kinase pathways in breast cells

L3 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Insight into the genome of *Aspergillus fumigatus*: analysis of a 922 kb region encompassing the nitrate assimilation gene cluster

L3 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Comparison of the genome sequence of FP9, an attenuated, tissue culture-adapted European strain of Fowlpox virus, with those of virulent American and European viruses

L3 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Modified receptors on cell membranes for the discovery of therapeutic ligands

L3 ANSWER 5 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Molecular identification and characterization of a novel nuclear protein whose expression is up-regulated in insulin-resistant animals.

L3 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Integrated mapping, chromosomal sequencing and sequence analysis of *Cryptosporidium parvum*

L3 ANSWER 7 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Exploring the *Penicillium marneffei* genome.

L3 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Reagents and methods for identifying and modulating expression of genes regulated by cyclin-dependent kinase (CDK) inhibitors and therapeutic uses thereof

L3 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Human tumor suppressor ASP (apoptosis stimulating protein), their natural inhibitor I-ASP and function in transactivation of p53

L3 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Endocrine disruptor screening using DNA chips of endocrine disruptor-responsive genes

L3 ANSWER 11 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI The genome of Swinepox virus.

L3 ANSWER 12 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI An **ankyrin repeat**-containing protein plays a role in both disease **resistance** and antioxidation metabolism.

L3 ANSWER 13 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI A 14-3-3-interacting, **ankyrin repeat**-containing protein plays a role in both disease **resistance** and antioxidation metabolism.

L3 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Genome of lumpy skin disease virus

L3 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Regulation of systemic acquired **resistance** by NPR1 and its partners

L3 ANSWER 16 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

TI Cloning of a novel insulin signaling molecule SPANK protein and therapeutic uses thereof

L3 ANSWER 17 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Nitric oxide and salicylic acid signaling in plant defense.

L3 ANSWER 18 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
TI The genome of fowlpox virus

L3 ANSWER 19 OF 25 CABA COPYRIGHT 2004 CABI on STN
TI Tobacco TGA factors differ with respect to interaction with NPR1, activation potential and DNA-binding properties.

L3 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sequence and use of RANK1 gene encoding **ankyrin repeat**-containing peptide from rice associated with disease **resistance**

L3 ANSWER 21 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
TI Interaction of NPR1 with basic leucine zipper protein transcription factors that bind sequences required for salicylic acid induction of the PR-1 gene

L3 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
TI Acquired **resistance** NPR1 genes from Arabidopsis thaliana and Nicotiana glutinosa and their use for genetic engineering

L3 ANSWER 23 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Arabidopsis: A weed leading the field of plant-pathogen interactions.

L3 ANSWER 24 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Signalling pathways: A common theme in plants and animals?.

L3 ANSWER 25 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Gene organization in the bleomycin-**resistance** region of the producer organism Streptomyces verticillius.

=> s l1 and review
L4 32 L1 AND REVIEW

=> duplicate remove l4
L5 31 DUPLICATE REMOVE L4 (1 DUPLICATE REMOVED)

=> d ti 1-31

L5 ANSWER 1 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Ankyrin builds up a connection of membrane protein: beyond erythroid area

L5 ANSWER 2 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Hypothesis: A helix of ankyrin repeats of the NOMPC-TRP ion channel is the gating spring of mechanoreceptors

L5 ANSWER 3 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Wolbachia pipientis: intracellular infection and pathogenesis in Drosophila

L5 ANSWER 4 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI The journey to smORFland

L5 ANSWER 5 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI The role of integrin-linked kinase (ILK) in cancer progression

L5 ANSWER 6 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Ankyrins, multifunctional proteins involved in many cellular pathways

L5 ANSWER 7 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Integrin-linked kinase, a promising cancer therapeutic target: biochemical and biological properties

L5 ANSWER 8 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI A short domain within Bcl-3 is responsible for its lymphocyte survival activity

L5 ANSWER 9 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Enhancement of noradrenergic phenotype expression in transgenic mice overexpressing V-1, a cytoplasmic **ankyrin repeat** protein

L5 ANSWER 10 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Ankyrin repeat** mediated protein-protein interaction

L5 ANSWER 11 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Plectin repeats and modules: strategic cysteines and their presumed impact on cytolinker functions

L5 ANSWER 12 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
TI Expression control and functions of cardiovascular system-specific factor CARP

L5 ANSWER 13 OF 31 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI Protein repeats: Structures, functions, and evolution.

L5 ANSWER 14 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI The molecular biology of the group VIA Ca2+-independent phospholipase A2

L5 ANSWER 15 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI The Shank family of scaffold proteins

L5 ANSWER 16 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Integrin-linked kinase (ILK): a "hot" therapeutic target

L5 ANSWER 17 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Ankyrin: structure, properties, and functions

L5 ANSWER 18 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI The **ankyrin repeat**: a diversity of interactions on a common structural framework

L5 ANSWER 19 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI ZAP genes. Characterizing the protein structure of a new family of proliferation-associated genes in exocrine pancreas

L5 ANSWER 20 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Combinatorial transcription factors

L5 ANSWER 21 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Control of apoptosis by poxviruses

L5 ANSWER 22 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Arabidopsis: a weed leading the field of plant-pathogen interactions

L5 ANSWER 23 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Ankyrin for clues about the function of p16INK4a

L5 ANSWER 24 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Integrin cytoplasmic interactions and bidirectional transmembrane signaling

L5 ANSWER 25 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Smooth muscle myosin phosphatase

L5 ANSWER 26 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI **Ankyrin repeat**

L5 ANSWER 27 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Regulation of the NF- κ B/rel transcription factor and I κ B inhibitor system

L5 ANSWER 28 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Signal transduction via transcription factor Rel/NF- κ B

L5 ANSWER 29 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI **Ankyrin repeat**

L5 ANSWER 30 OF 31 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI SIGNAL TRANSDUCTION THE NUCLEAR TARGET.

L5 ANSWER 31 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 TI NF- κ B and related proteins: Rel/dorsal homologies meet ankyrin-like repeats

=> d bib abs 18 17 6 10 13 26

L5 ANSWER 18 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:30693 CAPLUS
 DN 132:148122
 TI The **ankyrin repeat**: a diversity of interactions on a common structural framework
 AU Sedgwick, Steven G.; Smerdon, Stephen J.
 CS Division of Yeast Genetics and the Division of Protein Structure, respectively, National Institute for Medical Research, London, NW7 1AA, UK
 SO Trends in Biochemical Sciences (1999), 24(8), 311-316
 CODEN: TBSCDB; ISSN: 0376-5067
 PB Elsevier Science Ltd.
 DT Journal; General Review
 LA English
 AB A **review** with 32 refs. The **ankyrin repeat** is one of the most common protein sequence motifs. Recent X-ray and NMR structures of **ankyrin-repeat** proteins and their

complexes have provided invaluable insights into the mol. basis of the extraordinary variety of biol. activities of these mols. In particular, they have begun to reveal how a large family of structurally related proteins can interact specifically with such a diverse array of macromol. targets.

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 17 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:391169 CAPLUS

DN 133:70271

TI Ankyrin: structure, properties, and functions

AU Batrukova, M. A.; Betin, V. L.; Rubtsov, A. M.; Lopina, O. D.

CS Department of Biochemistry, School of Biology, Lomonosov Moscow State University, Moscow, 119899, Russia

SO Biochemistry (Moscow) (Translation of Biokhimiya (Moscow)) (2000), 65(4), 395-408

CODEN: BIORAK; ISSN: 0006-2979

PB MAIK Nauka/Interperiodica Publishing

DT Journal; General Review

LA English

AB A **review** with 130 refs. Recent data on characteristics of the structure, functions, and main properties of ankyrins (proteins that are linkers between the spectrin-based cytoskeleton and integral membrane proteins) are summarized. The interactions of ankyrins with band-3 protein, P-type ATPases, ion channels, receptors, and protein kinase C are considered. The structures of ankyrin repeats that are often contained in other proteins (which are not classified with the ankyrin family) and ensure protein-protein interactions as well as interactions between proteins and nucleic acids is described in detail. Mechanisms which regulate the ability of ankyrins to interact with other proteins (alternative splicing and post-translational modification, including phosphorylation) are also considered.

RE.CNT 130 THERE ARE 130 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:787566 CAPLUS

DN 138:268716

TI Ankyrins, multifunctional proteins involved in many cellular pathways

AU Hryniewicz-Jankowska, Anita; Czogalla, Aleksander; Bok, Ewa; Sikorski, Aleksander F.

CS Institute of Biochemistry and Molecular Biology, University of Wroclaw, Pol.

SO Folia Histochemica et Cytobiologica (2002), 40(3), 239-249

CODEN: FHCYEM; ISSN: 0239-8508

PB "Vesalius" University Medical Publisher

DT Journal; General Review

LA English

AB A **review**. Ankyrins, originally discovered as components of the erythrocyte membrane appeared to be a family of animal proteins encoded in mammalian cells by 3 related genes. Developmentally regulated, tissue-specific posttranscriptional processing generates a great variety of isoforms which seem to play specific role in various cells and subcellular structures, being involved, for example, in membrane skeleton organization, ionic transport, maintenance of cell polarity as well as cell-cell adhesion regulation. The interaction between the membrane skeleton and cytoplasmic domains of transmembrane proteins plays a fundamental role in membrane integrity and stability as well as in many cellular processes. Once the cDNA sequence of red blood cell ankyrin was determined it became clear that **ankyrin-repeat** motifs are present in many proteins whose function is rather unrelated to the membrane skeleton, e.g. transcription factors. Ankyrins are a multigene family of intracellular, structural proteins that link several integral membrane proteins and the spectrin-based membrane cytoskeleton. The anion exchanger, Na⁺-K⁺ ATPase, a voltage-dependent Na⁺ channel, an Na⁺/Ca²⁺-exchanger, and adhesion mols. have been reported to interact with ankyrin in nonerythroid cells. Ankyrin was first found to link integral membrane proteins to the underlying spectrin-actin based membrane skeleton in the human erythrocyte. It was subsequently described in a variety of vertebrate cells and tissues, including brain, epithelia, and skeletal muscle. Variable cellular localization of these membrane proteins may be possible due to different relative affinities of various isoforms of ankyrin for target proteins.

RE.CNT 136 THERE ARE 136 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:308701 CAPLUS

DN 138:20932

TI **Ankyrin repeat** mediated protein-protein interaction

AU Du, Haining; Hu, Hongyu

CS Institute of Biochemistry and Cell Biology, Shanghai Institute for
Biological Sciences, The Chinese Academy of Sciences, Shanghai, 200031,
Peop. Rep. China

SO Shengwu Huaxue Yu Shengwu Wuli Jinzhan (2002), 29(1), 6-9
CODEN: SHYCD4; ISSN: 1000-3282

PB Shengwu Huaxue Yu Shengwu Wuli Jinzhan Bianjibu

DT Journal; General Review

LA Chinese

AB A **review** focused on **ankyrin repeat** mediated
protein-protein interaction including structure characteristics, biol.
function of **ankyrin repeat**.

L5 ANSWER 13 OF 31 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

AN 2001:525025 BIOSIS

DN PREV200100525025

TI Protein repeats: Structures, functions, and evolution.

AU Andrade, Miguel A. [Reprint author]; Perez-Iratxeta, Carolina [Reprint
author]; Ponting, Chris P.

CS European Molecular Biology Laboratory, Meyerhofstr. 1, Heidelberg, 69012,
Germany

SO Journal of Structural Biology, (May-June, 2001) Vol. 134, No. 2-3, pp.
117-131. print.
CODEN: JSBIEM. ISSN: 1047-8477.

DT Article

LA English

ED Entered STN: 14 Nov 2001
Last Updated on STN: 23 Feb 2002

AB Internal repetition within proteins has been a successful strategem on
multiple separate occasions throughout evolution. Such protein repeats
possess regular secondary structures and form multirepeat assemblies in
three dimensions of diverse sizes and functions. In general, however,
internal repetition affords a protein enhanced evolutionary prospects due
to an enlargement of its available binding surface area. Constraints on
sequence conservation appear to be relatively lax, due to binding
functions ensuing from multiple, rather than, single repeats.
Considerable sequence divergence as well as the short lengths of sequence
repeats mean that repeat detection can be a particularly arduous task. We
also consider the conundrum of how multiple repeats, which show strong
structural and functional interdependencies, ever evolved from a single
repeat ancestor. In this **review**, we illustrate each of these
points by referring to six prolific repeat types (repeats in
beta-propellers and beta-trefoils and tetratricopeptide, ankyrin,
armadillo/HEAT, and leucine-rich repeats) and in other less-prolific but
nonetheless interesting repeats.

L5 ANSWER 26 OF 31 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:695195 CAPLUS

DN 121:295195

TI **Ankyrin repeat**

AU Nojima, Hiroshi

CS Res. Inst. Microb. Dis., Osaka Univ., Suita, 565, Japan

SO Jikken Igaku (1994), 12(14), 1756-8
CODEN: JIIGEF; ISSN: 0288-5514

DT Journal; General Review

LA Japanese

AB A **review**, with 11 refs., on history of the discovery of the
ankyrin repeat, its structure, proteins containing the
motif, and its physiol. function.

=> s ll and defense
L6 13 L1 AND DEFENSE

=> d ti 1-143

L6 ANSWER 1 OF 13 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI The alpha-helical D1 domain of the tobacco bZIP transcription factor BZI-1
interacts with the **ankyrin-repeat** protein ANK1 and is
important for BZI-1 function, both in auxin signaling and pathogen
response.

L6 ANSWER 2 OF 13 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Nitric oxide and salicylic acid signaling in plant **defense**.

L6 ANSWER 3 OF 13 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Arabidopsis: A weed leading the field of plant-pathogen interactions.

L6 ANSWER 4 OF 13 AGRICOLA Compiled and distributed by the National
Agricultural Library of the Department of Agriculture of the United States
of America. It contains copyrighted materials. All rights reserved.
(2004) on STN

TI An **ankyrin repeat**-containing protein plays a role in

both disease resistance and antioxidation metabolism.

- L6 ANSWER 5 OF 13 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN
- TI Nitric oxide and salicylic acid signaling in plant **defense**.
- L6 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
- TI The α -Helical D1 Domain of the Tobacco bZIP Transcription Factor BZI-1 Interacts with the **Ankyrin-repeat** Protein ANK1 and Is Important for BZI-1 Function, Both in Auxin Signaling and Pathogen Response
- L6 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Human vanilloid receptor-2 protein and its encoding nucleic acid sequence and role in mediation of intracellular calcium flux in response to external stimuli
- L6 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Directed proteomics identifies a plant-specific protein rapidly phosphorylated in response to bacterial and fungal elicitors
- L6 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Nitric oxide and salicylic acid signaling in plant **defense**
- L6 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Tobacco TGA factors differ with respect to interaction with NPR1, activation potential and DNA-binding properties
- L6 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Arabidopsis: a weed leading the field of plant-pathogen interactions
- L6 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
- TI Acquired resistance NPR1 genes from Arabidopsis thaliana and Nicotiana glutinosa and their use for genetic engineering
- L6 ANSWER 13 OF 13 CABA COPYRIGHT 2004 CABI on STN
- TI Nitric oxide and salicylic acid signaling in plant **defense**.

=> d bib abs 4 5 8 10 11

- L6 ANSWER 4 OF 13 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN
- AN 2002:39954 AGRICOLA
- DN IND23273693
- TI An **ankyrin repeat**-containing protein plays a role in both disease resistance and antioxidation metabolism.
- AU Yan, J.; Wang, J.; Zhang, H.
- AV DNAL (QK710.P68)
- SO The Plant journal : for cell and molecular biology, Jan 2002. Vol. 29, No. 2. p. 193-202
Publisher: Oxford : Blackwell Sciences Ltd.
ISSN: 0960-7412
- NTE Includes references
- CY England; United Kingdom
- DT Article
- FS Non-U.S. Imprint other than FAO
- LA English
- AB The Arabidopsis **ankyrin repeat**-containing protein AKR2 was identified as a GF14lambda-interacting protein in a yeast two-hybrid screening (GF14lambda is a 14-3-3 protein). Reduced expression of AKR2 by using the antisense technique results in small necrotic areas in leaves accompanied by higher production of H2O2, similar to the hypersensitive response to pathogen infection in plant disease resistance. Transcripts of genes encoding pathogen-induced protein PR-1 (pathogen-related protein 1) and stress-responsive protein GST6 (glutathione S-transferase 6) are increased in antisense plants. The resistance to a bacterial pathogen infection was also increased by at least 10-fold in antisense plants. AKR2 also interacts with another GF14lambda-interacting protein, the ascorbate peroxidase 3 that scavenges H2O2 in plant cells. These data suggest that AKR2 may be a negative regulator of PR-1 expression, and is probably involved in the regulation of antioxidation metabolism that is shared by both disease resistance and stress responses.
- L6 ANSWER 5 OF 13 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN

AN 2001:50114 AGRICOLA
DN IND22905525
TI Nitric oxide and salicylic acid signaling in plant **defense**.
AU Klessig, D.F.; Durner, J.; Noad, R.; Navarre, D.A.; Wendehenne, D.; Kumar, D.; Zhou, J.M.; Shah, J.; Zhang, S.; Kachroo, P.
SO Proceedings of the National Academy of Sciences of the United States of America, Aug 1, 2000. Vol. 97, No. 16. p. 8849-8855
Publisher: Washington, D.C. : National Academy of Sciences, CODEN: PNASA6; ISSN: 0027-8424
NTE Paper presented at the colloquium "Virulence and **Defense** in Host-Pathogen Interactions: Common Features Between Plants and Animals" held December 9-11, 1999, Irvine, California.
Includes references
CY District of Columbia; United States
DT Article; Conference; Law
FS U.S. Imprints not USDA, Experiment or Extension
LA English
AB Salicylic acid (SA) plays a critical signaling role in the activation of plant **defense** responses after pathogen attack. We have identified several potential components of the SA signaling pathway, including (i) the H2O2-scavenging enzymes catalase and ascorbate peroxidase, (ii) a high affinity SA-binding protein (SABP2), (iii) a SA-inducible protein kinase (SIPK), (iv) NPR1, an **ankyrin repeat**-containing protein that exhibits limited homology to IkappaBalpha and is required for SA signaling, and (v) members of the TGA/OBF family of bZIP transcription factors. These bZIP factors physically interact with NPR1 and bind the SA-responsive element in promoters of several **defense** genes, such as the pathogenesis-related 1 gene (PR-1). Recent studies have demonstrated that nitric oxide (NO) is another signal that activates **defense** responses after pathogen attack. NO has shown to play a critical role in the activation of innate immune and inflammatory responses in animals. Increases in NO synthase (NOS)-like activity occurred in resistant but not susceptible tobacco after infection with tobacco mosaic virus. Here we demonstrate that this increase in activity participates in PR-1 gene induction. Two signaling molecules, cGMP and cyclic ADP ribose (cADPR), which function downstream of NO in animals, also appear to mediate plant **defense** gene activation (e.g., PR-1). Additionally, NO may activate PR-1 expression via an NO-dependent, cADPR-independent pathway. Several targets of NO in animals, including guanylate cyclase, aconitase, and mitogen-activated protein kinase (e.g., SIPK), are also modulated by NO in plants. Thus, at least portions of NO signaling pathways appear to be shared between plants and animals.

L6 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:482758 CAPLUS
DN 135:208298
TI Directed proteomics identifies a plant-specific protein rapidly phosphorylated in response to bacterial and fungal elicitors
AU Peck, Scott C.; Nuhse, Thomas S.; Hess, Daniel; Iglesias, Alejandro; Meins, Fred; Boller, Thomas
CS Friedrich Miescher Institute, Basel, CH-4002, Switz.
SO Plant Cell (2001), 13(6), 1467-1475
CODEN: PLCEEW; ISSN: 1040-4651
PB American Society of Plant Physiologists
DT Journal
LA English
AB The perception of microbial signal mols. is part of the strategy evolved by plants to survive attacks by potential pathogens. To gain a more complete understanding of the early signaling events involved in these responses, we used radioactive orthophosphate to pulse-label suspension-cultured cells of Arabidopsis in conjunction with two-dimensional gel electrophoresis and mass spectrometry to identify proteins that are phosphorylated rapidly in response to bacterial and fungal elicitors. One of these proteins, AtPhos43, and related proteins in tomato and rice, are phosphorylated within minutes after treatment with flagellin or chitin fragments. By measuring 32P incorporation into AtPhos43 immunopptd. from exts. of elicitor-treated hormone and **defense**-response mutants, we found that phosphorylation of AtPhos43 after flagellin treatment but not chitin treatment is dependent on FLS2, a receptor-like kinase involved in flagellin perception. Induction by both elicitors is not dependent on salicylic acid or EDS1, a putative lipase involved in **defense** signaling.

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:325854 CAPLUS
DN 133:247988
TI Tobacco TGA factors differ with respect to interaction with NPR1, activation potential and DNA-binding properties
AU Niggeweg, Ricarda; Thürow, Corinna; Weigel, Ralf; Pfitzner, Ursula; Gatz,

Christiane
 CS Albrecht-von-Haller-Institut für Pflanzenwissenschaften,
 Georg-August-Universität Göttingen, Göttingen, 37073, Germany
 SO Plant Molecular Biology (2000), 42(5), 775-788
 CODEN: PMBIDB; ISSN: 0167-4412
 PB Kluwer Academic Publishers
 DT Journal
 LA English
 AB In higher plants, as-1-like cis elements mediate auxin- and salicylic acid-inducible transcription. Originally found in viral and T-DNA promoters, they are also functional elements of plant promoters activated during the **defense** response against pathogens. Tobacco bZIP transcription factor TGA1a was the first recombinant protein shown to bind to as-1. cDNAs for two novel tobacco as-1-binding bZIP proteins (TGA2.1 and TGA2.2) were isolated. Revealing a high degree of amino acid identity in the bZIP domain (89%) and the C-terminus (79%), the two TGA2 factors differ remarkably with respect to the length of the N-terminus (170 amino acids in TGA2.1 vs. 43 amino acids in TGA2.2). TGA2.1 and TGA2.2, but not TGA1a, interacted with **ankyrin repeat** protein NPR1, a central activator of the plant **defense** response. In contrast, TGA2.1 and TGA1a, but not TGA2.2, functioned as transcriptional activators in yeast. Apart from conferring transcriptional activation, the N-terminal domain of TGA2.1 led to reduced in vitro as-1-binding activity and almost completely abolished binding to one half site of this bifunctional element. When being part of a heterodimer with TGA2.2, TGA2.1 was efficiently recruited to a single half site, though double occupancy of the element was still preferred. In contrast, TGA1a preferred to bind to only one palindrome, a feature that was also maintained in heterodimers between TGA1a and TGA2.1 or TGA2.2.
 RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:174372 CAPLUS
 DN 128:255101
 TI Arabidopsis: a weed leading the field of plant-pathogen interactions
 AU Buell, C. Robin
 CS Department of Biological Sciences, Louisiana State University, Louisiana Agricultural Experiment Station, Baton Rouge, LA, 70803, USA
 SO Plant Physiology and Biochemistry (Paris) (1998), 36(1-2), 177-186
 CODEN: PPBIEX; ISSN: 0981-9428
 PB Editions Scientifiques et Medicales Elsevier
 DT Journal; General Review
 LA English
 AB A review with 56 refs. Arabidopsis thaliana, like other flowering plants, exhibits specificity in resistance to plant pathogens. Using the genetic diversity present in differential accessions of Arabidopsis, over 49 loci which govern pathogen specificity have been identified. Similar to resistance genes from other plant species, the Arabidopsis RPS2, RPM1, and RPP5 resistance genes encode leucine-rich repeat proteins, suggesting that Arabidopsis behaves in a manner similar to other angiosperms in disease resistance mechanisms. Novel insights into events subsequent to pathogen recognition in Arabidopsis have been obtained from anal. of mutants altered in **defense**. Not only have signal transduction pathways been deduced, but several genes involved in post-recognition events have been cloned using positional cloning methods. One such gene, NPR1, encodes an **ankyrin-repeat** protein with similarity to animal proteins which regulate the inflammatory response in mammalian cells and antifungal responses in Drosophila, suggesting an ancestral link in **defense** responses between the animal and plant kingdoms. NPR1 is not alone in providing novel insights into the mechanism(s) of disease resistance, the ein2 and hls1 mutants have clearly demonstrated that ethylene has a role in plant **defense**, and the cloning of the LSD1 gene provides a mol. tool to examine reactive oxygen species in programmed cell death.
 RE.CNT 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> s IkappaBalpha and (plant or tobacco or arabidopsis or soybean or rice or maize)
 L7 25 IKAPPABALPHA AND (PLANT OR TOBACCO OR ARABIDOPSIS OR SOYBEAN OR RICE OR MAIZE)

=> duplicate remove 17
 L8 24 DUPLICATE REMOVE L7 (1 DUPLICATE REMOVED)

=> d ti 1-24

L8 ANSWER 1 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI Flavopiridol inhibits NF-kappaB activation induced by various carcinogens and inflammatory agents through inhibition of **IkappaBalpha** kinase and p65 phosphorylation. Abrogation of cyclin D1, cyclooxygenase-2,

and matrix metalloprotease-9.

L8 ANSWER 2 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Proline- and arginine-rich peptides constitute a novel class of allosteric
inhibitors of proteasome activity.

L8 ANSWER 3 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN
TI Curcumin (diferuloylmethane) down-regulates cigarette smoke-induced
NF- κ B activation through inhibition of I κ B α kinase in
human lung epithelial cells: correlation with suppression of COX-2, MMP-9
and cyclin D1

L8 ANSWER 4 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI In vitro anti-inflammatory activity of panduratin A isolated from
Kaempferia pandurata in RAW264.7 cells.

L8 ANSWER 5 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Scoparone inhibits tissue factor expression in lipopolysaccharide-
activated human umbilical vein endothelial cells.

L8 ANSWER 6 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Calagualine inhibits nuclear transcription factors-kappaB activated by
various inflammatory and tumor promoting agents.

L8 ANSWER 7 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Inhibitory effect of flavonoids on TNF-alpha-induced ICAM-1 expression and
monocyte adhesion.

L8 ANSWER 8 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Inositol 1,3,4-trisphosphate 5/6-kinase associates with the COP9
signalosome by binding to CSN1.

L8 ANSWER 9 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Rocaglamide derivatives are potent inhibitors of NF-kappaB activation in
T-cells.

L8 ANSWER 10 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Piceatannol inhibits TNF-induced NF-kappaB activation and
NF-kappaB-mediated gene expression through suppression of
IkappaBalpha kinase and p65 phosphorylation.

L8 ANSWER 11 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Immunosuppressive activity of capsaicinoids: Capsiate derived from sweet
peppers inhibits NF-kappaB activation and is a potent antiinflammatory
compound in vivo.

L8 ANSWER 12 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Nuclear factor-kappaB inhibitors as potential novel anti-inflammatory
agents for the treatment of immune glomerulonephritis.

L8 ANSWER 13 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Triptolide sensitizes lung cancer cells to TNF-related apoptosis-inducing
ligand (TRAIL)-induced apoptosis by inhibition of NF-kappaB activation.

L8 ANSWER 14 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Inhibitory effects of the standardized extract (DA-9601) of Artemisa
asiatica Nakai on phorbol ester-induced ornithine decarboxylase activity,
papilloma formation, cyclooxygenase-2 expression, inducible nitric oxide
synthase expression and nuclear transcription factor kappaB activation in
mouse skin.

L8 ANSWER 15 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Curcumin suppresses activation of NF-kappaB and AP-1 induced by phorbol
ester in cultured human promyelocytic leukemia cells.

L8 ANSWER 16 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Expression of the S. typhimurium effector AvrA in epithelial cells
inhibits a key inflammatory signaling pathway in a manner distinct from
that of Yersinia YopJ.

L8 ANSWER 17 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Avicins, a family of triterpenoid saponins from Acacia victoriae
(Benth), inhibit activation of nuclear factor-kappaB by inhibiting both
its nuclear localization and ability to bind DNA.

L8 ANSWER 18 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Identification of a 2,6-dichloroisonicotinic-acid-sensitive protein kinase
from tobacco by affinity chromatography on benzothiadiazole-
sepharose and NIM-metal chelate adsorbent.

L8 ANSWER 19 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 1

TI Nitric oxide and salicylic acid signaling in **plant** defense.

L8 ANSWER 20 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI Oleandrin suppresses activation of nuclear transcription factor-kappaB, activator protein-1, and c-Jun NH2-terminal kinase.

L8 ANSWER 21 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI Triptolide: A potent inhibitor of NF-kappaB in T-lymphocytes.

L8 ANSWER 22 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI Suppression of tumor necrosis factor-activated nuclear transcription factor-kappaB, activator protein-1, c-Jun N-terminal kinase, and apoptosis by beta-lapachone.

L8 ANSWER 23 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI Suppression of TNFalpha-mediated NFkappaB activity by myricetin and other flavonoids through downregulating the activity of IKK in ECV304 cells.

L8 ANSWER 24 OF 24 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
 TI A novel protein complex involved in signal transduction possessing similarities to 26S proteasome subunits.

=> s IkappaBalpha
 L9 1938 IKAPPABALPHA

=> s 19 and py<1996
 2 FILES SEARCHED...
 L10 41 L9 AND PY<1996

=> duplicate remove l10
 L11 39 DUPLICATE REMOVE L10 (2 DUPLICATES REMOVED)

=> d ti 1-39

L11 ANSWER 1 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Regulation of NF- κ B by control of the proteolysis of the I κ B- α inhibitor and identification of proteinase inhibitors

L11 ANSWER 2 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Screening for regulators of proteolysis of the NF- κ B inhibitor I κ B- α for regulating NF- κ B activity

L11 ANSWER 3 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Activation of NF- κ B by phosphatase inhibitors involves the phosphorylation of I κ B α at phosphatase 2A-sensitive sites

L11 ANSWER 4 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Signal-induced degradation of I κ B α requires site-specific ubiquitination

L11 ANSWER 5 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Stimulation-dependent I κ B α phosphorylation marks the NF- κ B inhibitor for degradation via the ubiquitin-proteasome pathway

L11 ANSWER 6 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Constitutive phosphorylation of I κ B α by casein kinase II

L11 ANSWER 7 OF 39 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 1
 TI Avian **IkappaBalpha** transcriptionally induced by c-Rel and v-Rel with different kinetics.

L11 ANSWER 8 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Inhibition of NF- κ B-Rel A expression by antisense oligodeoxynucleotides suppresses synthesis of urokinase-type plasminogen activator (uPA) but not its inhibitor PAI-1

L11 ANSWER 9 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Interleukin-4 inhibits κ light chain expression and NF- κ B activation but not I κ B α degradation in 702/3 murine pre-B cells

L11 ANSWER 10 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Domain organization of I κ B α and sites of interaction with NF- κ B p65

L11 ANSWER 11 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Transcription-independent turnover of I κ B α during monocyte adherence: implications for a translational component regulating I κ B α /MAD-3 mRNA levels

L11 ANSWER 12 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Signal-induced site-specific phosphorylation targets I κ B α to the ubiquitin-proteasome pathway

L11 ANSWER 13 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Regulation of I κ B α and p105 in monocytes and macrophages persistently infected with human immunodeficiency virus

L11 ANSWER 14 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Retrovirus-mediated transfer of nuclear factor- κ B subunit genes modulates I κ B α and interferon β expression

L11 ANSWER 15 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI The PEST-like sequence of I κ B α is responsible for inhibition of DNA binding but not for cytoplasmic retention of c-Rel or RelA homodimers

L11 ANSWER 16 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Cupric ion blocks NF κ B activation through inhibiting the signal-induced phosphorylation of I κ B α

L11 ANSWER 17 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Constitutive phosphorylation and turnover of I κ B α in human T-cell leukemia virus type I-infected and Tax-expressing T cells

L11 ANSWER 18 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Activation of NF- κ B requires proteolysis of the inhibitor I κ B- α : Signal-induced phosphorylation of I κ B- α alone does not release active NF- κ B

L11 ANSWER 19 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Structure and regulation of the gene encoding avian inhibitor of nuclear factor κ B- β

L11 ANSWER 20 OF 39 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 2
 TI Intron-exon structure of the porcine I κ B α -encoding gene.

L11 ANSWER 21 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI NF- κ B subunit-specific regulation of the I κ B α promoter

L11 ANSWER 22 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Tumor necrosis factor α -induced phosphorylation of I κ B α is a signal for its degradation but not dissociation from NF- κ B

L11 ANSWER 23 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Inducible phosphorylation of I κ B α is not sufficient for its dissociation from NF- κ B and is inhibited by protease inhibitors

L11 ANSWER 24 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Human T-cell leukemia virus type I Tax activation of NF- κ B/Rel involves phosphorylation and degradation of I κ B α and RelA (p65)-mediated induction of the c-rel gene

L11 ANSWER 25 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI A proteasome inhibitor prevents activation of NF- κ B and stabilizes a newly phosphorylated form of I κ B- α that is still bound to NF- κ B

L11 ANSWER 26 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Three nf- κ B sites in the i κ b- α promoter are required for induction of gene expression by TNF α

L11 ANSWER 27 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Enhanced I κ B α degradation is responsible for constitutive NF- κ B activity in mature murine B-cell lines

L11 ANSWER 28 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Disruption of I κ B α regulation by antisense RNA expression leads to malignant transformation

L11 ANSWER 29 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Hypoxia causes the activation of nuclear factor κ B through the phosphorylation of I κ B α on tyrosine residues

L11 ANSWER 30 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI NF- κ B and I κ B α : an inducible regulatory system in endothelial activation

L11 ANSWER 31 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Autoregulation of IκBα activity

L11 ANSWER 32 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Coordinate induction of IκBα and NFκB genes

L11 ANSWER 33 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI In vivo mechanisms for the cytoplasmic retention of NF-κB and for its release from IκBα

L11 ANSWER 34 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI IκBα-mediated inhibition of v-Rel DNA binding requires direct interaction with the RXRXXRXXC Rel/κB DNA-binding motif

L11 ANSWER 35 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI In vivo control of NF-κB activation by IκBα

L11 ANSWER 36 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Tumor necrosis factor and interleukin-1 lead to phosphorylation and loss of IκBα: A mechanism for NF-κB activation

L11 ANSWER 37 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Cytokine-inducible expression in endothelial cells of an IκBα-like gene is regulated by NFκB

L11 ANSWER 38 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI IκBα can localize in the nucleus but shows no direct transactivation potential

L11 ANSWER 39 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Mutual regulation of the transcriptional activator NF-κB and its inhibitor, IκB-α

=> d bib abs 38 39 32

L11 ANSWER 38 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1993:619117 CAPLUS
 DN 119:219117
 TI IκBα can localize in the nucleus but shows no direct transactivation potential
 AU Cressman, Drew E.; Taub, Rebecca
 CS Sch. Med., Univ. Pennsylvania, Philadelphia, PA, 19104-6145, USA
 SO Oncogene (1993), 8(9), 2561-6
 CODEN: ONCNES; ISSN: 0950-9232
 DT Journal
 LA English
 AB Although IκB is a cytoplasmic inhibitor of NF-κB and c-Rel that prevents nuclear translocation of NF-κB, some forms of IκB have been found in the nucleus. Given that some other proteins with ankyrin-type repeats are transcription factors, the authors wondered if a nuclear form of IκBα could itself be a transcriptional activator. The authors found that Gal4-IκBα fusion proteins strongly transactivate a Gal4 site-containing promoter in 3T3 fibroblasts. The IκBα domain responsible for this transactivation is not the acidic domain of IκBα, but the ankyrin repeat domain which is responsible for protein-protein interactions. To enhance the authors' ability to detect cellular IκBα by immunofluorescence, the authors overexpressed the protein in transfected cells, and found that overexpressed IκBα is largely cytoplasmic in serum-deprived cells, but nuclear in serum-stimulated cells. However, in cell fractionation studies under all treatment conditions, IκBα appears mainly in cytoplasmic fractions, suggesting that it can rapidly move out of the nucleus through nuclear pores during extract preparation. Using double antibody immunoprecipitation, the authors found that IκBα in proliferating cells is strongly associated with RelA(p65). When IκBα is fused to the Gal4 DNA-binding domain, nuclear Gal4-IκBα is associated with RelA(p65) mol. could account for the ability of Gal4-IκBα to transactivate the Gal4 promoter. Unlike Bcl-3, an IκB which has been recently shown to directly transactivate through κB sites when associated with NFκB2 (p52), IκBα shows no ability to directly transactivate target promoters via its association with RelA(p65).

L11 ANSWER 39 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 1993:402374 CAPLUS
 DN 119:2374
 TI Mutual regulation of the transcriptional activator NF-κB and its inhibitor, IκB-α
 AU Brown, Keith; Park, Sun; Kanno, Tomohiko; Franzoso, Guido; Siebenlist, Ulrich
 CS Lab. Immunoregul., Natl. Inst. Allergy Infect. Dis., Bethesda, MD, 20892,

USA
SO Proceedings of the National Academy of Sciences of the United States of
America (1993), 90(6), 2532-6
CODEN: PNASA6; ISSN: 0027-8424
DT Journal
LA English
AB The NF- κ B transcription factor complex is sequestered in the
cytoplasm by the inhibitory protein I κ B- α (MAD-3). Various
cellular stimuli relieve this inhibition by mechanisms largely unknown,
leading to NF- κ B nuclear localization and transactivation of its
target genes. It is demonstrated here with human T lymphocytes and
monocytes that different stimuli, including tumor necrosis factor α
and phorbol 12-myristate 13-acetate, cause rapid degradation of
I κ B- α , with concomitant activation of NF- κ B, followed by
a dramatic increase in I κ B- α mRNA and protein synthesis.
Transfection studies reveal that the I κ B- α mRNA and the
encoded protein are potently induced by NF- κ B and by homodimers of
p65 and of c-Rel. A model is proposed in which NF- κ B and
I κ B- α mutually regulate each other in a cycle: saturating amts. of
the inhibitory I κ B- α protein are destroyed upon stimulation,
allowing rapid activation of NF- κ B. Subsequently, I κ B- α
mRNA and protein levels are quickly induced by the activated NF- κ B.
This resurgence of I κ B- α protein acts to restore an equilibrium in
which NF- κ B is again inhibited.

L11 ANSWER 32 OF 39 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:237541 CAPLUS
DN 120:237541
TI Coordinate induction of I κ B α and NF κ B genes
AU Tzen, Chin Yuan; Cox, Robin L.; Scott, Robert E.
CS Med. Cent., Univ. Tennessee, Memphis, TN, 38163, USA
SO Experimental Cell Research (1994), 211(1), 12-16
CODEN: ECREAL; ISSN: 0014-4827
DT Journal
LA English
AB The NF κ B transcription factor exists in an inactive state when
complexed with I κ B α in the cytosol. Upon stimulation by a
variety of agents, NF κ B is released from I κ B α and is
translocated to the nucleus to induce κ B motif-containing promoters.
Once I κ B α is dissociated from NF κ B, I κ B α is
rapidly degraded. The current studies now show: (1) the expression of
I κ B α can be induced by protein synthesis inhibitors including
cycloheximide, anisomycin, and puromycin; (2) cycloheximide-dependent
induction can be blocked by a transcriptional inhibitor; (3)
double-stranded RNA and tumor necrosis factor α , which are both
known to induce NF κ B, induce the expression of I κ B α ,
whereas L-cysteine, which is known to inhibit NF κ B expression,
inhibits I κ B α expression; and (4) the induction of
I κ B α gene expression is transient, as is the induction of
other NF κ B-inducible genes. These findings suggest that
I κ B α is a NF κ B-inducible gene. The results also show a
concomitant induction of both subunits of NF κ B (p50 and p65) after
the treatment of cells with double-stranded RNA. A model is proposed
suggesting the existence of integrated pathways for the pos. and neg.
autoregulation of I κ B α and NF κ B.

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STN INTERNATIONAL SESSION SUSPENDED AT 16:28:49 ON 13 AUG 2004